

CLAIMS

- 5        1. A process for frame specific tagging of television audio and video broadcast streams with tag translation at a receiver, comprising the steps of:  
            providing a storage device on said receiver;  
            inserting tags into said broadcast stream;  
            tuning said receiver to said broadcast stream;  
10        receiving said broadcast stream at said receiver;  
            storing said broadcast stream on said storage device;  
            detecting said tags in said broadcast stream;  
            processing said tags;  
            displaying program material in said broadcast stream from said storage device to a viewer;  
            wherein said processing step performs the appropriate actions in response to said tags; and  
            wherein said tags include command and control information.
- 15        2. The process of claim 1, wherein tags indicate the start and end points of a program segment.
- 20        3. The process of claim 2, wherein said displaying step skips over said program segment in response to the viewer pressing a button on a remote input device.
- 25        4. The process of claim 2, wherein said displaying step automatically skips said program segment.
- 30        5. The process of claim 1, wherein said processing step displays a menu to the viewer based on information included in a tag.
- 35        6. The process of claim 1, wherein said processing step records the current program in said broadcast stream on said storage device based on information included in a tag.
7. The process of claim 1, said processing step further comprising the steps of:  
            displaying multiple icons to the viewer;

accepting viewer input information;  
allowing the viewer to scroll through said multiple icons;  
selecting a particular icon based on the viewer's input; and  
performing an action associated with the selected icon.

5

8. The process of claim 1, further comprising the steps of:  
wherein said processing step displays an icon to the viewer based on information included in a tag;

10

accepting viewer input information;  
interacting with the viewer based on the tag information;  
wherein said displaying step saves the exit point in the program material; and  
wherein the viewer is returned to said exit point upon completion of any interaction.

15

9. The process of claim 8, further comprising the steps of:  
presenting a plurality of menus to the viewer for generating a lead; and  
forwarding the viewer's contact information to a third party upon viewer approval.

20

10. The process of claim 8, further comprising the steps of:  
presenting a plurality of menus to the viewer for generating a sale of an advertised product or service; and  
forwarding the viewer's purchase information to the proper merchant.

25

11. The process of claim 8, further comprising the step of:  
presenting a set of program recording options to the viewer; and  
scheduling the viewer's recording preferences.

30

12. The process of claim 8, further comprising the step of:  
presenting the content of a Web site's Web page to the viewer in response to the viewer's input; and  
wherein the viewer is allowed to interact with said Web site.

35

13. The process of claim 1, wherein said tags allow a system administrator to remotely configure said receiver.

14. The process of claim 1, further comprising the steps of:

marking indexes in said program material based on tag information; and jumping to an index selected by the viewer.

15. A process for scheduling the recording of a television program via an advertisement in a television broadcast stream, comprising the steps of:

5 receiving said television broadcast stream;

playing a promotional advertisement in said television broadcast stream for a future showing of a program;

10 displaying an icon notifying the viewer that said program is available to record;

accepting the viewer's single key press from a remote input device; and

scheduling the recording of said program.

16. The process of claim 15, wherein said icon is displayed based on a tag inserted into said television broadcast stream.

17. The process of claim 15, further comprising the step of:

providing a storage device; and

wherein said program is stored on said storage device when the scheduled time arrives.

18. A process for the automatic replacement of program segments in a multimedia television broadcast stream at a receiver, comprising the steps of:

receiving said multimedia television broadcast stream;

detecting the start and end points of an old program segment in said broadcast

25 stream;

providing a plurality of new program segments; and

substituting said old program segment with a new program segment during playback of said broadcast stream to a viewer.

30 19. The process of claim 18, wherein said detecting step searches for tags inserted into said broadcast stream denoting the start and end points of program segments.

20. The process of claim 19, wherein said tags are located in the closed caption area of said broadcast stream.

35 21. The process of claim 18, further comprising the step of:

- providing a storage device on said receiver; and  
wherein said new program segments are stored on said storage device.
22. The process of claim 21, further comprising the steps of:  
5 receiving new program segments via said broadcast stream; and  
storing said new program segments on said storage device.
23. The process of claim 18, wherein said new program segments are stored at a  
remotely accessible location.  
10
24. The process of claim 18, wherein said new program segment to be played back is  
selected based on criteria such as: locale, the time of day, program material, the viewer's  
viewing habits, the viewer's program preferences, or the viewer's personal information.  
15
25. The process of claim 24, wherein said criteria may result in the old program  
segment not being substituted.  
20
26. The process of claim 24, wherein said new program segments have program  
objects describing their features which are used to select the best matching new program  
segment.  
25
27. The process of claim 18, wherein a rotation mechanism is used when selecting  
said new program segments to avoid ad burnout.  
28. An apparatus for frame specific tagging of television audio and video broadcast  
streams with tag translation at a receiver, comprising:  
30 a storage device on said receiver;  
a module for inserting tags into said broadcast stream;  
a module for tuning said receiver to said broadcast stream;  
a module for receiving said broadcast stream at said receiver;  
a module for storing said broadcast stream on said storage device;  
35 a module for detecting said tags in said broadcast stream;  
a module for processing said tags;  
a module for displaying program material in said broadcast stream from said  
storage device to a viewer;  
wherein said processing module performs the appropriate actions in response to

said tags; and

wherein said tags include command and control information.

29. The apparatus of claim 28, wherein tags indicate the start and end points of a  
5 program segment.

30. The apparatus of claim 29, wherein said displaying module skips over said program segment in response to the viewer pressing a button on a remote input device.

10 31. The apparatus of claim 29, wherein said displaying module automatically skips said program segment.

32. The apparatus of claim 28, wherein said processing module displays a menu to the viewer based on information included in a tag.

15 33. The apparatus of claim 28, wherein said processing module records the current program in said broadcast stream on said storage device based on information included in a tag.

20 34. The apparatus of claim 28, said processing module further comprising:  
a module for displaying multiple icons to the viewer;  
a module for accepting viewer input information;  
a module for allowing the viewer to scroll through said multiple icons;  
a module for selecting a particular icon based on the viewer's input; and  
25 a module for performing an action associated with the selected icon.

35. The apparatus of claim 28, further comprising:  
wherein said processing module displays an icon to the viewer based on information included in a tag;

30 a module for accepting viewer input information;  
a module for interacting with the viewer based on the tag information;  
wherein said displaying module saves the exit point in the program material; and  
wherein the viewer is returned to said exit point upon completion of any interaction.

35 36. The apparatus of claim 35, further comprising:

a module for presenting a plurality of menus to the viewer for generating a lead; and

a module for forwarding the viewer's contact information to a third party upon viewer approval.

5        37. The apparatus of claim 35, further comprising:

a module for presenting a plurality of menus to the viewer for generating a sale of an advertised product or service; and

a module for forwarding the viewer's purchase information to the proper merchant.

10      38. The apparatus of claim 35, further comprising:

a module for presenting a set of program recording options to the viewer; and

a module for scheduling the viewer's recording preferences.

15      39. The apparatus of claim 35, further comprising:

a module for presenting the content of a Web site's Web page to the viewer in response to the viewer's input; and

wherein the viewer is allowed to interact with said Web site.

20      40. The apparatus of claim 28, wherein said tags allow a system administrator to remotely configure said receiver.

25      41. The apparatus of claim 28, further comprising:

a module for marking indexes in said program material based on tag information;

and

a module for jumping to an index selected by the viewer.

30      42. An apparatus for scheduling the recording of a television program via an advertisement in a television broadcast stream, comprising:

a module for receiving said television broadcast stream;

a module for playing a promotional advertisement in said television broadcast stream for a future showing of a program;

a module for displaying an icon notifying the viewer that said program is available to record;

35      a module for accepting the viewer's single key press from a remote input device;

and

a module for scheduling the recording of said program.

43. The apparatus of claim 42, wherein said icon is displayed based on a tag inserted into said television broadcast stream.

5

44. The apparatus of claim 42, further comprising:  
a storage device; and  
wherein said program is stored on said storage device when the scheduled time arrives.

10

45. A apparatus for the automatic replacement of program segments in a multimedia television broadcast stream at a receiver, comprising:

a module for receiving said multimedia television broadcast stream;  
a module for detecting the start and end points of an old program segment in said broadcast stream;  
a module for providing a plurality of new program segments; and  
a module for substituting said old program segment with a new program segment during playback of said broadcast stream to a viewer.

15  
20  
25

46. The apparatus of claim 45, wherein said detecting module searches for tags inserted into said broadcast stream denoting the start and end points of program segments.

30

47. The apparatus of claim 46, wherein said tags are located in the closed caption area of said broadcast stream.

48. The apparatus of claim 45, further comprising:  
a storage device on said receiver; and  
wherein said new program segments are stored on said storage device.

35

49. The apparatus of claim 48, further comprising:  
a module for receiving new program segments via said broadcast stream; and  
a module for storing said new program segments on said storage device.

50. The apparatus of claim 45, wherein said new program segments are stored at a remotely accessible location.

5 51. The apparatus of claim 45, wherein said new program segment to be played back  
is selected based on criteria such as: locale, the time of day, program material, the  
viewer's viewing habits, the viewer's program preferences, or the viewer's personal  
information.

52. The apparatus of claim 51, wherein said criteria may result in the old program  
segment not being substituted.

10 53. The apparatus of claim 51, wherein said new program segments have program  
objects describing their features which are used to select the best matching new program  
segment.

15 54. The apparatus of claim 45, wherein a rotation mechanism is used when selecting  
said new program segments to avoid ad burnout.

20 55. A program storage medium readable by a computer, tangibly embodying a  
program of instructions executable by the computer to perform method steps for frame  
specific tagging of television audio and video broadcast streams with tag translation at a  
receiver, comprising the steps of:

25 providing a storage device on said receiver;  
inserting tags into said broadcast stream;  
tuning said receiver to said broadcast stream;  
receiving said broadcast stream at said receiver;  
storing said broadcast stream on said storage device;  
detecting said tags in said broadcast stream;  
processing said tags;  
displaying program material in said broadcast stream from said storage device to a  
viewer;

30 wherein said processing step performs the appropriate actions in response to said  
tags; and

wherein said tags include command and control information.

35 56. The method of claim 55, wherein tags indicate the start and end points of a  
program segment.

57. The method of claim 56, wherein said displaying step skips over said program segment in response to the viewer pressing a button on a remote input device.
- 5 58. The method of claim 56, wherein said displaying step automatically skips said program segment.
- 10 59. The method of claim 55, wherein said processing step displays a menu to the viewer based on information included in a tag.
- 15 60. The method of claim 55, wherein said processing step records the current program in said broadcast stream on said storage device based on information included in a tag.
- 20 61. The method of claim 55, said processing step further comprising the steps of:  
displaying multiple icons to the viewer;  
accepting viewer input information;  
allowing the viewer to scroll through said multiple icons;  
selecting a particular icon based on the viewer's input; and  
performing an action associated with the selected icon.
- 25 62. The method of claim 55, further comprising the steps of:  
wherein said processing step displays an icon to the viewer based on information included in a tag;  
accepting viewer input information;  
interacting with the viewer based on the tag information;  
wherein said displaying step saves the exit point in the program material; and  
wherein the viewer is returned to said exit point upon completion of any interaction.
- 30 63. The method of claim 62, further comprising the steps of:  
presenting a plurality of menus to the viewer for generating a lead; and  
forwarding the viewer's contact information to a third party upon viewer approval.
- 35 64. The method of claim 62, further comprising the steps of:  
presenting a plurality of menus to the viewer for generating a sale of an advertised product or service; and  
forwarding the viewer's purchase information to the proper merchant.

- 5           65. The method of claim 62, further comprising the step of:  
presenting a set of program recording options to the viewer; and  
scheduling the viewer's recording preferences.
- 10          66. The method of claim 62, further comprising the step of:  
presenting the content of a Web site's Web page to the viewer in response to the  
viewer's input; and  
wherein the viewer is allowed to interact with said Web site.
- 15          67. The method of claim 55, wherein said tags allow a system administrator to remotely  
configure said receiver.
- 20          68. The method of claim 55, further comprising the steps of:  
marking indexes in said program material based on tag information; and  
jumping to an index selected by the viewer.
- 25          69. A program storage medium readable by a computer, tangibly embodying a  
program of instructions executable by the computer to perform method steps for  
scheduling the recording of a television program via an advertisement in a television  
broadcast stream, comprising the steps of:  
receiving said television broadcast stream;  
playing a promotional advertisement in said television broadcast stream for a  
future showing of a program;  
displaying an icon notifying the viewer that said program is available to record;  
accepting the viewer's single key press from a remote input device; and  
scheduling the recording of said program.
- 30          70. The method of claim 69, wherein said icon is displayed based on a tag inserted  
into said television broadcast stream.
- 35          71. The method of claim 69, further comprising the step of:  
providing a storage device; and  
wherein said program is stored on said storage device when the scheduled time  
arrives.

72. A program storage medium readable by a computer, tangibly embodying a program of instructions executable by the computer to perform method steps for the automatic replacement of program segments in a multimedia television broadcast stream at a receiver, comprising the steps of:

- 5 receiving said multimedia television broadcast stream;  
detecting the start and end points of an old program segment in said broadcast stream;  
providing a plurality of new program segments; and  
substituting said old program segment with a new program segment during  
10 playback of said broadcast stream to a viewer.

73. The method of claim 72, wherein said detecting step searches for tags inserted into said broadcast stream denoting the start and end points of program segments.

74. The method of claim 73, wherein said tags are located in the closed caption area of said broadcast stream.

75. The method of claim 72, further comprising the step of:  
providing a storage device on said receiver; and  
wherein said new program segments are stored on said storage device.

76. The method of claim 75, further comprising the steps of:  
receiving new program segments via said broadcast stream; and  
storing said new program segments on said storage device.

25 77. The method of claim 72, wherein said new program segments are stored at a remotely accessible location.

78. The method of claim 72, wherein said new program segment to be played back is selected based on criteria such as: locale, the time of day, program material, the viewer's viewing habits, the viewer's program preferences, or the viewer's personal information.  
30

79. The method of claim 78, wherein said criteria may result in the old program segment not being substituted.

35 80. The method of claim 78, wherein said new program segments have program

Attorney Docket No. TIVO0024

objects describing their features which are used to select the best matching new program segment.

81. The method of claim 72, wherein a rotation mechanism is used when selecting said  
5 new program segments to avoid ad burnout.

CONFIDENTIAL - ATTORNEY'S EYES ONLY